

Classification of the Petrels, based upon those collected by the *Challenger* Expedition. He divided them into two main families—the Oceanitidæ or Oceanic Petrels, with four genera and seven species, and the Procellariidæ, divisible into three sub-families of albatrosses, diving petrels, and true petrels. As to descent, he considered the petrels were probably much modified descendants of some ancient form related to the ciconiform birds of Garrod, i.e., the storks, American vultures, and their allies. Mr. P. H. Carpenter, M.A., read papers *On the various Larval Forms of Comatula*, and also *On the Species of British Comatula*. Other zoological papers of interest were by Prof. Busk *On the Use of the Chitinous Appendages of the Skeleton in the Cheilostomatous Polyzoa in the Diagnosis of Species*; Mr. W. T. Blanford, F.R.S., *On our Present Knowledge of the Fauna Inhabiting British India and its Dependencies*; Mr. P. A. Geddes, *Notes on Chlamydomyxa*, and *On a New Sub-Class of Infusorians*; Gen. Sir J. E. Alexander, *On the Improvement of Freshwater Fisheries*, and a further report was made *On the Marine Zoology of South Devon*.

Among other botanical communications we may note those of Mr. J. G. Baker, F.R.S., *On the Botany of Madagascar*; of Mr. A. W. Bennett *On the Colours of Spring Flowers*; of Mr. Joseph Lucas *On some Vestiges of the Ancient Forest of Part of the Penine Chain*. The department sat during five days, and twenty-eight communications were disposed of, including twenty zoological and eight botanical; the latter, however, fully divided the interest with the former, owing mainly to the papers of Sir John Lubbock and Mr. Bennett.

NOTES

DR. RUDOLPH KÖNIG of Paris, whose acoustical fame is world-wide, is about to publish in one volume, in the French language, his remarkable researches in acoustics, which have appeared at intervals in the *Annalen der Physik* and elsewhere, during the past fifteen years. The work will, we understand, be liberally illustrated with drawings of the newer and more important pieces of apparatus which Dr. König has invented.

M. PASTEUR, it is stated, has resolved to visit the Bordeaux lazaretto to study yellow fever, and ascertain whether it is due to a parasite, and can be guarded against by inoculation.

THE building of the Observatory of the Pic du Midi has been completed on the very top of the mountain, at an altitude of 2600 metres. The old building, which was placed in a valley at a less elevated situation, will be used merely as a station for travellers. General Nansouty is now busy fitting the establishment with apparatus and victuals for next winter, as, according to every probability, it will be blocked by snow during more than six months. The storms are so heavy that not less than six electric light conductors have been established for protection.

THE autumn meeting of the Iron and Steel Institute will be held in London this year, on October 11–14, at the Institute of Civil Engineers, under the presidency of Sir Henry Bessemer, F.R.S. Numerous excursions have been arranged for, and the following papers are announced to be read:—On the manufacture of steel and steel rails in the United States (supplementary paper), by Capt. W. R. Jones, Pittsburg, Pa.; on a method of securing homogeneity in the Bessemer process, by Mr. W. D. Allen; on the manufacture of ordnance at Woolwich, by Col. Maitland; on the application of wrought iron and steel to the manufacture of gun carriages, by Mr. H. Butter; on the manufacture of projectiles, by Mr. J. Davidson; on the distribution of elements in steel ingots, by Mr. G. J. Snelus; on the use of brown coal in the blast furnace, by Prof. P. Ritter von Tünner, Leoben, Austria; on certain physical tests and properties of steel, by Mr. Edward Richards; on the tin-plate manufacture, by Mr. Trubshaw; on the use of American anthracite in the blast furnace, by Mr. J. Hartman, Philadelphia; on variation of elements in cast-steel ingots, by Mr. F. Stubbs; and on the recent progress of the basic Bessemer process, by Herr Paul Kupelweiser, director of the Witkowitz Works, Austria.

GREAT preparations are being made in Dublin for the forthcoming meeting of the Social Science Congress, which begins its

sittings there on the evening of Monday, October 3, when Lord O'Hagan, as president, will deliver the inaugural address in the Exhibition Palace. Among the other addresses to be given are the following:—"On Education," by Sir Patrick J. Keenan, K.C.M.G., C.B.; "On Health," by Dr. Cameron, M.P.; "On Economy and Trade," by Mr. Goldwin Smith; and "On Art," by Lord Powerscourt. During the week garden parties and *conversazioni* will be given by some of the leading citizens and learned societies.

BARON MIKLUHO MACLAY, before leaving Sydney, gave to the Linnean Society of New South Wales on July 25 a short account of the progress of the Sydney Biological Station at Watson's Bay, which has been opened through his energies, and of which we recently gave some account. The building was to be ready in a week's time, Dr. Maclay stated. The Royal Society of Victoria have agreed to assist the establishment of the station, not only by personal subscription, but also by an annual grant from the funds of the Society. This last decision is most important, opening the prospect of a permanent, if moderate, subsidy for the support of the institution. The Royal Society of New South Wales will also probably, on the representation of the President at the last annual meeting, follow a similar course. "I entertain the hope," Dr. Maclay said, "that the establishment of the Biological Station of Sydney will very probably induce the other colonies to follow this good example, and will be the means of uniting the scientific societies of different colonies. That the Biological Station of Sydney will not remain long isolated in this part of the world is a fact, as Dr. Hector told me that he intended to establish one in New Zealand. The establishment of an Intercolonial Biological Association, which should have for its object to assist in the formation, maintenance, and regulation of biological stations in Australia, was a plan which, in my opinion, ought not to remain long a *pium desiderium* only. Therefore I called a public meeting, June 15, with the object—1. To obtain a number of yearly contributors, as the subsidy from the Government is in proportion to the public subscription, and the yearly subsidies from the Royal Society of New South Wales and Victoria are very moderate. 2. To frame rules for the station. From the gentlemen present at the meeting a committee was chosen for the discussion of the proposed rules, this committee consisting of six members, of which four are at the same time trustees of the Biological Station; after four meetings, agreed to a code of rules, which will be submitted to the trustees of the Biological Station." Certainly science in Australia is greatly indebted to the intelligent energy of the Russian naturalist, and we trust the work so well begun will be continued without abatement.

THE Epping Forest and County of Essex Naturalists' Field Club's annual Cryptogamic meeting is advertised for Saturday, October 1. The Club is to be congratulated for the list of well-known botanists who appear as referees and conductors. Thus for Fungi we see the names of Dr. M. C. Cooke, M.A., F.L.S., Mr. Worthington Smith, F.L.S., Dr. H. T. Wharton, M.A., F.L.S., and Mr. James English; whilst for Mosses and Lichens the names of Dr. Braithwaite, F.L.S., and Mr. E. M. Holmes F.L.S., are announced.

THE Yorkshire Naturalists' Union will have a Fungus Foray on Friday and Saturday, September 30 and October 1, at which they will gladly welcome any mycologists who may be disposed to assist them. The Friday's programme is to consist of an excursion in the neighbourhood of Harrogate. On the Saturday is to be a "show," at which will be exhibited fungi, and any objects illustrative of the subject which may be sent. The dinner is to be on the evening of Saturday. Arrangements are being made to search localities in all parts of Yorkshire for specimens to exhibit; and at the meetings the Union will be

honoured by the presence of Messrs. W. Phillips, C. B. Plowright, G. Massee, and Rev. J. E. Vize.

No less than ten observers are now engaged at the Observatory of Paris in the completion of the catalogue of stars which was begun by Leverrier. The work is progressing at an unprecedented rate, not less than 70,000 observations having been tabulated, after having been duly reduced in a single year. Admiral Mouchez has taken possession of the new Observatory grounds, and the earthworks for the foundation of the great refractor building, and the construction of the underground chambers in which the magnetic observations are to be conducted, is being continued.

DURING the York session of the British Association a most successful half-yearly meeting of the members of the Natural History Society of the Friends' School in Bootham was held in the lecture-room of that establishment. Among those present were Prof. S. P. Thompson, F.R.A.S., J. G. Baker, F.R.S., A. W. Bennett, F.L.S., J. Edmund Clark, F.G.S., Thomas Gough, M.A. (of Elmfield College), Rev. T. A. Preston, M.A. (Science Master of Marlborough College), Dr. W. W. Newbould, Langley Kitching, Ed. Grubb, M.A., Hugh Richardson, R. M. Christy, A. J. Wigham, with J. F. Fryer, B.A. (the present head master), Fielden Thorp, B.A. (the former superintendent), who presided, and many others. Dr. D. Hack Tuke delivered an interesting address strongly advocating the study of science. Mr. Baker of Kew said that a large measure of his success in life was due to the early scientific training he had received when a member of this society. Many other interesting addresses were given by those present. The Society is only three years younger than the British Association itself, having been formed on August 14, 1834. Since that time many ardent naturalists, now well known to science, had passed through its ranks.

A CORRESPONDENT from Kingussie, in Inverness-shire, writes: "We had just (Sunday, 18th) been reading somewhat sceptically the paragraph about the pink rainbow, when behold, to our astonishment, there appeared just over Glen Feshy the most lovely pink rainbow you can imagine, shaded from crimson to pale pink, but no other colour. It was strange and beautiful, and none of us had ever seen anything like it before."

THE just-issued volume of the *Proceedings* of the Natural History Society at Berne (Nos. 979-1003) contains, besides minutes of proceedings and small notes, several valuable papers: by Prof. Studer, on the segmentation of *Madreporaceæ*, on the corals of Singapore, and on the statistical researches as to the colour of eyes and hair of children in the canton of Berne; by Dr. Graf, on the specific heat of gases at constant volume; on glacial deposits at Berne, by M. Bachmann; on the intrusion of limestones into the crystalline rocks of the Finsteraarhorn, on the dependence of organisms upon oxygen, and on the influence of poisons on invertebrata, by Dr. Arnold; and several anatomical notes by Prof. Luchsinger.

WE have received the *Proceedings* of the sixty-third annual meeting of the Swiss Society of Naturalists, which was held in September last year at Brieg. They contain the address of the president, M. Wolf, and minutes of proceedings of the sections, among which we notice communications:—by Prof. Rüttimeyer, on the metamorphoses of skulls; by Prof. Yung, on his physiological researches on cephalopods at the Naples Zoological Station; by M. Lory, on geological researches on the Finsteraarhorn; and by M. de la Harpe, on the nummulitic formation in Switzerland. In the Reports of Commissions we notice the report, by Prof. Rüttimeyer, on the important work, by M. Ph. Gosset, on the glacier of the Rhone, to which the Schläfli Foundation was awarded. This immense work, which is the result of six years' consecutive measurements of the positions of

no less than 156 numbered and painted blocks, carefully chosen on the surface of the glacier, as well as of surveys on the scale of 1 : 5000, contains a thorough description of the glacier of the Rhone, and is accompanied by a most elaborate map of the glacier, numerous transverse and longitudinal sections, and several sheets of drawings, which show the results of the measurements as to the motion of the glacier.

STATISTICAL researches as to the colour of the hair and eyes of children had been made in all the cantons of Switzerland, with the exception of Berne, Geneva, and Tessino. The investigation as to the first of these cantons is now terminated, and the results of the examination of 94,221 children are published by Prof. Studer in the *Proceedings* of the Berne Society of Natural History (No. 986), and are accompanied by four coloured maps, which show graphically the results. It is seen from these researches that in the canton of Berne the dark type prevails over the fair, but that the pure types are not so numerous, especially in the central parts, as the mixed ones. The pure fair type, which makes 9 to 11 per cent. in the north-eastern parts of the canton, increases to the south (11 to 14 per cent. in the middle parts, and 15 to 20 per cent. in the Alps), and reaches its highest percentage in the secluded valley of the Saanen (28 per cent.). The dark type is most numerous in two regions—that of the western lakes and Old Rhaetia (21 to 29 per cent.), whilst in the middle parts it reaches only 21 to 25 per cent., and only 16 to 20 per cent. in some secluded valleys. After having shown the distribution of mixed types, Prof. Studer considers these data in connection with history, and comes to several interesting conclusions.

MESSRS. SONNENSCHN AND ALLEN have issued a second edition of Prantl's "Elementary Text-book of Botany," revised by Dr. S. H. Vines, who has made considerable alterations in the book, with the view of increasing its usefulness. The most important alteration, it is stated, is the adoption of a Classification of Flowering Plants which will be more familiar to English students than that which was followed in the first edition.

A RECENT speech of the Governor of Hong-kong, Sir John Pope Hennessy, contains an interesting account of the spread of vaccination amongst the Chinese in the Colony and on the neighbouring mainland. No port in the world is more liable to a visitation of small-pox, yet it never spreads there. The health-officer of the Colony also was astonished to find that nearly all the young Chinese emigrants had vaccination or inoculation marks upon their arms. He says he was often puzzled to know how this vaccination came to be apparently so perfect among the Chinese. On inquiry it turned out that the native doctors of the Tung-wa Hospital—a charitable institution supported by the voluntary contributions of Chinese—not only vaccinated their countrymen in the Colony itself, but actually sent travelling vaccinators over the adjoining provinces of China. In this way thousands of people have been vaccinated during the last four years. The lymph is supplied them by the Governor, who gets it every mail in his despatch-bag from Downing-street. Three dentists also appear in the census of the professions of the Colony. "About eighteen months ago," adds his Excellency, "I visited one, not professionally, but for the purpose of seeing the instruments he used, and I then found he had the same apparatus we find in all dentists' establishments. In fact he did work for the first-rate American dentists we have here, being fully capable of making or repairing sets of teeth. He was a gentleman of intelligence, and impressed me, I must say, as favourably as a dentist could."

THE Congress of Orientalists has had a very successful meeting at Berlin. Of the International Geographical Congress and

Exhibition at Venice, we hope to give a detailed report next week. An Archæological Congress was opened at Tiflis on Tuesday; among the delegates is Prof. Virchow. The Caucasus Museum was also opened; the collections were very numerous and varied.

THE ensuing session of the Aristotelian Society for the Systematic Study of Philosophy will open on October 10, at 20, John Street, Adelphi, W.C., with an address by the president, Shadworth H. Hodgson, LL.D., and the Society will thereafter continue its historical studies, alternated with discussions of philosophical questions.

WE gladly welcome the appearance of the "Phænogamous and Vascular Cryptogamous Plants of Michigan," by Charles F. Wheeler and Erwin F. Smith (Lansing, 1881). 1559 species of flowering plants are enumerated, and 75 of horsetails, ferns, and lycopods. The arrangement followed is that of the fifth edition of Gray's Manual, and the authors promise to publish addenda from time to time.

WE have received the first part of Fr. Westhoff's "Käfer Westfalens," forming a supplement to the "Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande und Westfalens," Jahrgang 38 (1881). It is only a List, prefaced by remarks on the district, and with list of authors, &c., but it promises to be of value on account of the thorough manner in which it appears to be worked out, and the beetle-fauna appears to be rich. Adopting the latest European Catalogue as a basis, this first part extends to the *Heteroceridae*. No new species are described, but several apparently new varieties in the *Carabidae* and water-beetles receive names.

UNDER the direction of the Council of the Meteorological Society, Mr. W. Marriott has issued "Hints to Meteorological Observers, with Instructions for taking Observations, and Tables for their Reduction" (Stanford). Many of our readers might be able to turn these Hints to good practical account. We have also received the first number of the *Meteorological Record*, containing the monthly results of observations made at the stations of the Meteorological Society, with remarks on the weather for the quarter ending March 31.

THE Report of the Committee of the Queenwood College Mutual Improvement Society for the end of the summer term 1881 is interesting, showing that much useful and varied work is being done by the Society.

THE additions to the Zoological Society's Gardens during the past week include a Malbrouck Monkey (*Cercopithecus cynosurus*) from West Africa, presented by Mrs. Paterson; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. Harding Cox; a Rubiginous Cat (*Felis rubiginosa*) from Ceylon, presented by Mr. Charles E. Pole Carew; a Brown Bear (*Ursus arctos*) from Russia, presented by Messrs. Morgan, Gellibrand, and Co.; two Chukar Partridges (*Caccabis chukar*) from India, presented by Col. Thos. Pierce, 16th Regt. Bombay N.I.; two Dwarf Chamæleons (*Chamæleo pumilis*) from South Africa, presented by Mr. Duncan W. B. Swaine; two Spanish Terrapins (*Clemmys leprosa*) from Spain, presented by Major Rooke; a Diamond Snake (*Morelia spilotes*) from Australia, presented by Mr. C. C. Sharratt; two Cape Crowned Cranes (*Balearia chrysopelargus*), two Wattled Cranes (*Grus carunculata*) from South Africa, deposited; a Black-faced Spider Monkey (*Ateles ater*) from South America, on approval.

PHYSICAL NOTES

DR. R. KÖNIG has just completed a new instrument—a variety of the wave-siren which we recently described—with which he proves an extremely important fact, which probably is new to all acousticians, namely, that the quality of a compound tone is

very distinctly affected by differences of *phase* in the components. An account of these last researches will be found in the forthcoming number of *Wiedemann's Annalen*.

DR. KÖNIG describes (*Wied. Ann.*, No. 8) a way of exploring the interior of organ-pipes (especially stopped ones) while in action, without disturbing the vibrations. The pipe, with a central longitudinal slit made in the back, and a plate-glass front, with scale, is supported horizontally in a trough, so that the slit and half the back of the pipe dips in water. A thin brass tube, bent twice at a right angle, is supported on the pipe, so that one end enters the slit to about the middle of the pipe. This tube can be slid along the pipe, and is connected by a caoutchouc tube to the ear, a manometric capsule with flame. Passing through a ventral segment, one notices a quite sudden weakening of the sound, then a sudden strengthening (like the stroke of a bell). By noting such points the position of the segment can be exactly determined. Dr. König gives some results which apparently fail to accord with theory. He also describes a drum-like arrangement for exploring pipes.

AN extremely ingenious piece of electric mechanism is now being shown in the Electrical Exhibition in Paris. It is an apparatus by which any number from 1 to 999 is automatically signalled on one wire by a single movement of the operator, the figures appearing at the distant end at an opening in a box. To describe the details of this apparatus would take too long a space. It is the invention of Mr. J. Mackenzie.

M. CORNU has constructed a polarising prism made of a single film of Iceland-spar fixed with Canada balsam between two flint-glass prisms. The polarisation is far from perfect, however, and the field is very narrow, so that the instrument, though of interest from a theoretical point of view, is of little or no practical value.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—An examination will be held at Exeter College on Thursday, October 13, for the purpose of filling up a Natural Science Scholarship, tenable for four years during residence. The examination will be in biology, chemistry, and physics. Candidates will be expected to show proficiency in at least two of these subjects, and the scholar will be required to read for honours in biology in the Natural Science School. The same papers will be set in chemistry and physics as in the examination for the Natural Science Scholarship at Trinity College. Candidates are desired to call on the Rector between 6 and 7 p.m. on Wednesday, October 12. They may obtain further information by application to the Rector, or to Mr. W. L. Morgan, the Lecturer in Biology at Exeter College.

THE Prospectus of Lectures and Classes for the first Session of University College, Nottingham, promises well. There will be both day and evening lectures and classes in Language and Literature (Prof. Symes), Mathematics, Mechanics, and Physics (Prof. Fleming), Chemistry (Prof. Clowes), Natural Science (Prof. Blake).

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